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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,568	11/19/2003	Setsuo Mishima	Q78557	5060

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EXAMINER	
MCNELIS, KATHLEEN A	
ART UNIT	**PAPER NUMBER**
1742	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/715,568	MISHIMA ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/21/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims Status

Claims 1-16 remain for examination wherein claim 1 is amended and claims 15 and 16 are new.

Status of Previous Rejections

The following rejections are maintained:

Claims 1-3, 5, 6, 9 and 11-14 under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957),

Claims 4, 7, 8 and 10 under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957) as applied to claims 1, 5, 6 and 9 alone or in further view of Uehara et al. (U.S. Pat. No. 6,767,414),

Claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. (U.S. Pat. No. 4,871,511), and

Claim 4 under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. as applied to claim 1, and further view of Uehara et al. (U.S. Pat. No. 6,767,414).

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 6, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957).

JP '212 in view of Floreen and JP '957 is applied as set forth in the 09/27/2006 Office action.

Regarding the amended limitations to claim 1, JP 2001-214212 (JP '212) discloses a method for producing Ti-containing maraging steel (¶ 0001) by vacuum inducting melting as in followed by vacuum arc re-melting (¶ 0002) as in the instant invention. JP '212 discloses manufacturing a thin strip where the size of the nitride inclusions is limited to 10 μm (¶ 0004), which is within the claimed range of ≤ 15 μm. While JP '212 in view of Floreen and JP '957 does not recite that the oxide type non-metallic inclusions have maximum length of not more than 20 μm, the composition and method of making the maraging steel taught by JP '212 in view of Floreen and JP '957 is substantially the same as that of the instant invention. Therefore, one or ordinary skill in the art would expect the size of inclusions to be substantially the same in JP '212 in view of Floreen and JP '957 as the instant invention.

Claims 4, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957) as applied to claims 1, 5, 6 and 9 alone or in further view of Uehara et al. (U.S. Pat. No. 6,767,414).

JP '212 in view of Floreen, JP '957 and Uehara et al. is applied as set forth in the 09/27/2006 Office action.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957) as applied to claims 1, 5, 6 and 9 and further in view of Uehara et al. (U.S. Pat. No. 6,767,414).

JP '212 in view of Floreen and JP '957 is applied as discussed above regarding claims 1, 5, 6 and 9.

Further, JP '212 discloses manufacturing a thin strip of 3.5 mm thickness (¶ 0017). In an example, Floreen discloses heat treatment of ingots at 2300 °F (i.e. 1260 °C) for 3 hours prior to rolling ingots into bars, then an additional two hours of heat treatment at 2000 °F (i.e. 1093 °C) prior to additional hot working (col. 3 lines 27 – 35). The temperatures 1260 °C and 1093 °C are within the claimed range of 1000 to 1300 °C. The combined heat treatment time of 5 hours is within the range of at least 5 hours.

JP '212 in view of Floreen and JP '957 does not recite that the bar is rolled to a strip of not more than 0.5 mm (claim 15) or that the strip is a component of a continuously variable transmission (claim 16).

Uehara et al. discloses a maraging steel with composition similar to that of JP '212 in view of Floreen and JP '957 (abstract) where maraging steels were melted using VIM and hot rolled to a thickness of about 0.3 mm (col. 8 lines 6-20) for use in a continuously variable transmission (col. 1 lines 5-13). Therefore one of ordinary skill in the art would expect that the maraging steel produced by JP '212 in view of Floreen and JP '957 could be rolled to a thickness of about 0.3 mm as for use as a component of a continuously variable transmission as taught by Uehara et al. since Uehara et al. discloses producing a 0.5mm strip using a maraging steel of similar composition and produced in a similar manner as JP '212 in view of Floreen and JP '957.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. (U.S. Pat. No. 4,871,511).

Smith Jr. et al. is applied as set forth in the 09/27/2006 Office action.

Regarding the amended limitations to claim 1, while Smith Jr. et al. does not recite that the nitride type inclusions have a length of not more than 15 μm and that the oxide type non-metallic inclusions have maximum length of not more than 20 μm, the composition and method of making the maraging steel taught by Smith Jr. et al. is substantially the same as that of the instant invention. Therefore, one or ordinary skill in the art would expect the size of inclusions to be substantially the same in Smith Jr. et al. as the instant invention.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. as applied to claim 1, and further view of Uehara et al. (U.S. Pat. No. 6,767,414).

Smith Jr. et al. in view of Uehara et al. is applied as set forth in the 09/27/2006 Office action.

Response to Arguments

Applicant's arguments filed 12/27/2006 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

1. JP '212 does not teach or suggest the concept of positively refining nitride inclusions and oxides during the melting process, but rather teaches the restricting the growth of the TiN inclusions.
2. Experimental data in the specification indicates that the instant invention is superior to prior art steel.
3. Smith uses AOD + VIM + VAR.
4. There is no motive to combine JP '212 with other prior art, since one of ordinary skill in the art would use Al rather than Mg for deoxidation, since the cost of Mg is higher.

Examiner's responses top these arguments is as follows:

1. The instant invention recites that preferably the consumable electrode is produced by VIM followed by VAR and plastic working (p. 5 lines 19-26). JP '212 discloses vacuum induction melting followed by VAR and hot rolling (i.e. plastic working) in examples 1 and 2, which is the same or essentially the same as the instant invention. The use vacuum ESR as an optional additional step in JP '212 is not precluded by the instant claims. Further, JP '212 discloses that the TiN inclusion are within the size limitations disclosed by the instant invention as discussed above.
2. The comparative example cited does not disclose that the same conditions and materials as JP '212 were used, therefore this is not evidence that the instant steel has superior properties to that of JP '212.
3. The instant claim language "comprising" is open, and therefore does not preclude the use of AOD as a preliminary step in Smith Jr. et al.
4. Arguments do not take the place of evidence. JP '212 discloses that aluminum is 0.35% or less (paragraph 0012), therefore one of ordinary skill in the art would not necessarily use Al for deoxidation due to the alleged higher cost of Mg. Floreen teaches the addition of Mg for deoxidization and malleabilizing of a similar steel and this teaching is combined as set forth on p. 3 of the 09/27/2006 Office action. Further, Smith Jr. et al. (col. 5 lines 35-40) and Sadowski et al. (col. 5 lines 38-40) disclose that it is beneficial for deoxidation and malleableizing maraging steel to add small amounts of Mg as discussed in the 09/27/2006 Office action, therefore examiner does not agree with the argument that only the disclosure of the present invention would lead one of ordinary skill in the art to add Mg.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAM
02/17/2007